CHAPTER 3. THE ARCHAEOLOGICAL SITE

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This chapter focuses on the archaeological site as such. We discuss the original landscape in the vicinity of the historic African Burial Ground, and then turn to the 1991-92 excavation site, which was a much smaller area, and show its location superimposed on historic maps. We look at physical impacts to the African Burial Ground that occurred during the active life of the cemetery, and then summarize the development of the site over the two hundred years between the closing of the cemetery and its rediscovery. Damage sustained to the site during the archaeological project is described. We then discuss overall site stratigraphy, the condition of the graves, and preservation factors.

3.A. The landscape, the site, post-cemetery development, and site preservation

The historic landscape

It is small wonder that New Yorkers of the late 20th century were unaware of the presence of the African Burial Ground beneath the densely developed lower Manhattan civic and commercial district (Figure 3.1). The modern topography in the vicinity barely suggests the original landform. The cemetery was on uneven terrain that sloped down from the flat of the common on the south, the "spine" of Broadway on the west, and "Pot Baker's hill" on the southeast to the "Little Collect" pond or swamp (Figure 3.2; the landform is also visible on the Ratzer Plan, Figure 3.7). Depictions of the land surrounding the Collect Pond show undulating terrain, with high bluffs -- presumably the Calk-Hook itself (the shell or chalk hill from which the farm and the pond got their original name) -- on the north (Figure 3.3).

Today, a vestige of the original slope can be seen along Elk Street, with a decrease in elevation of approximately 20' from Chambers Street to Duane Street (Figure 3.4). In the period of the African Burial Ground this slope would have been much steeper. We now know that the bottom of the hill was approximately twenty-four feet lower in elevation than it is today—at sea level. "Pot Baker's Hill" has been leveled and Chambers Street's elevation has changed little. The historic and current elevations of the African Burial Ground National Historic Landmark are discussed in the National Historic Landmark Nomination (Appendix A).

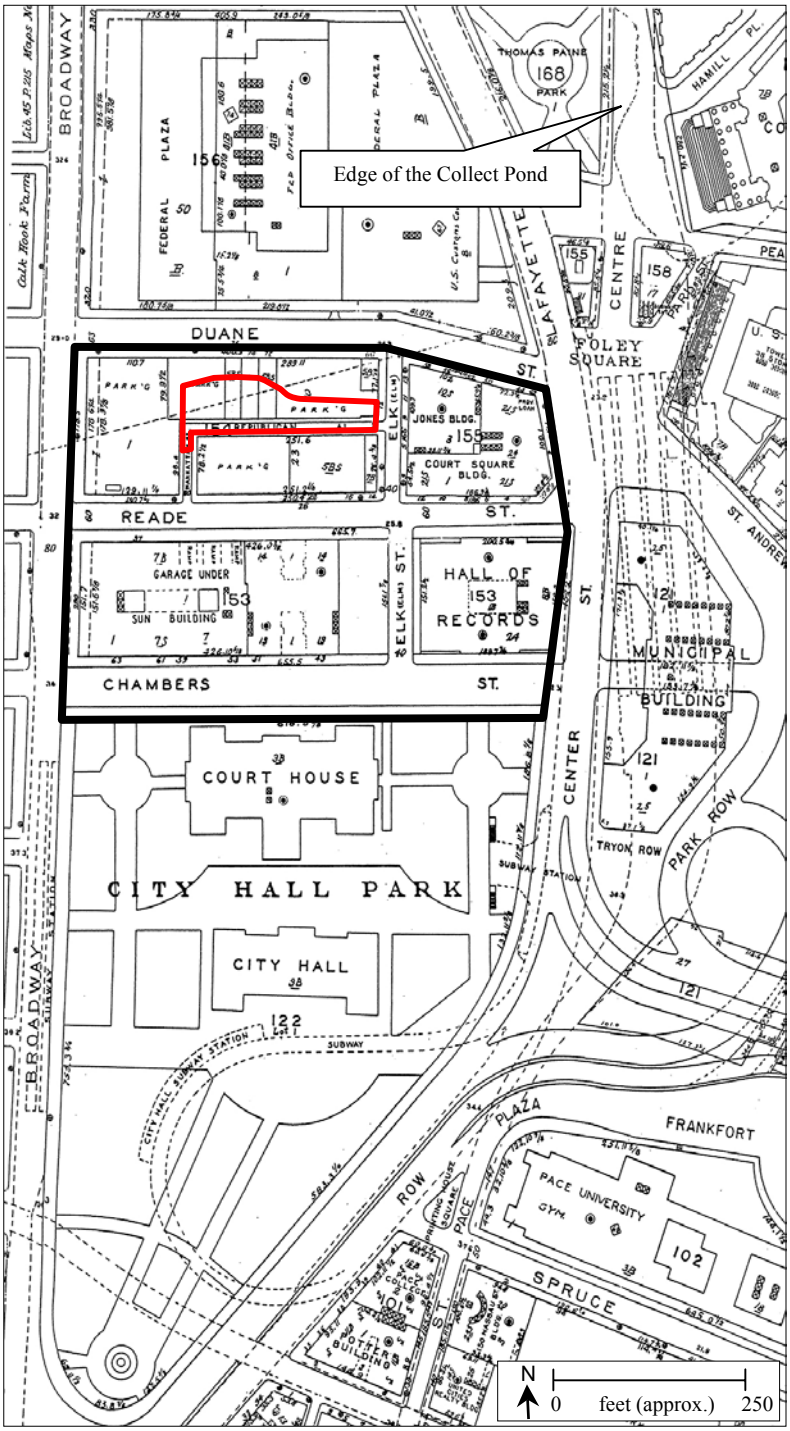

Figure 3.1.
Sanborn Map (Manhattan Land Book 1984-85) of New York's civic center area, encompassing the historic African Burial Ground at the time of the initial cultural resources investigation in 1989. Most of Block 154, bounded by Broadway and Duane, Read, and Elk Streets, was covered by parking lots. The map shows the historic "Calk Hook Farm" (labeled in upper left corner) and its southern boundary running diagonally from Broadway across the block. The historic edge of the Collect Pond is shown at the upper right. The small portion of the cemetery that was excavated in 1991-1992 is outlined with a red line within the boundary of the African Burial Ground National Historic Landmark (outlined with a thick black line). New York City's designated "African Burial Ground and the Commons Historic District" encompasses a larger area that includes all of City Hall Park as well as Foley Square. Source: New York Public Library.

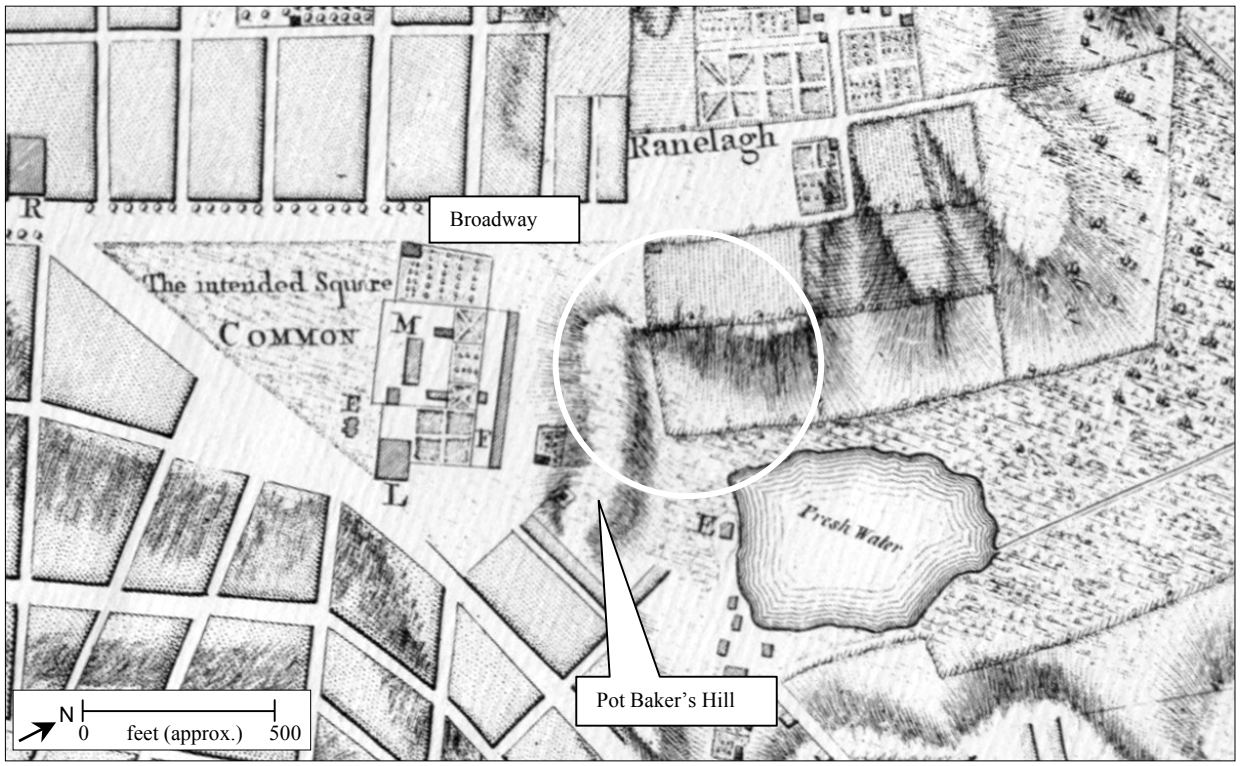

Figure 3.2.
Detail from cartographer John Montressor's plan (1766) showing the topography in the general location of the historic African Burial Ground (circled in white). Hachures show downward sloping north of "Pot Baker's Hill" and from west to east, beginning about 250 feet east of Broadway, toward Fresh Water Pond. "E" denotes the Powder House, "F" the soldiers barracks, "L" the Gaol, "M" the Almshouse/Workhouse, "R" St. Paul's. Ranelagh was a public pleasure garden. Source: Library of Congress.

Figure 3.3.
A 1798 watercolor of Collect Pond and vicinity, attributed to Archibald Robertson (American, 1765-1835). The view (to the south) is rather bucolic and idealized considering the industries such as tanneries that lined the shore. Source: Edward C. Arnold Collection, Metropolitan Museum of Art.

Figure 3.4.
An October 2005 view of the slope on Elk Street within the African Burial Ground National Historic Landmark, looking south toward City Hall Park. Photograph by Rob Tucher.

The hillside may not have been ideal for farm fields,[1] but animals grazed on the Common and may have been a nuisance at the cemetery. The pollen data (see Appendix G) registering the African Burial Ground landscape suggest that the flora was dominated by grass with some insect-pollinated herbs, such as relatives of goosefoot, chicory, asters; members of the pea sub-family; and, probably, some ragweed. Land clearance and tree removal on Manhattan and in the surrounding region are registered among the average total tree pollen percentage, but it does not appear that there were trees actually within the portion of the cemetery that was excavated. The northeastern edge of the African Burial Ground would have been marshy – note the proximity of the small "Swamp" depicted on Mrs. Buchnerd's plan (Figure 2.8); this body of water was also called the "Little Collect" on historic maps. Pollen analysis suggests that the marsh itself did not extend into the excavated portion of the cemetery, though sedge pollen may indicate intermittently wet conditions in low spots. Anthony Rutgers and his heirs drained the low-lying portions of their Calk Hook Farm during the 18th century, reducing the size of the Collect and "Little Collect" ponds (Stokes (1915-28(3):540, 965-66). It is likely this action affected the drainage of the ground within and at the edge of the cemetery. As the swampy ground

[1] Pollen analysis (Appendix G) identified a small quantity of cereal-type pollen grains, but indicated that the African Burial Ground site had probably never been farmed.

surrounding the Little Collect became drier, the area used for interments may have been extended to the northeast.[2]

The archaeological site in relation to the historic cemetery

"How much of the African Burial Ground did the archaeologists excavate?" is a question that has been asked often during the course of this project. The maximum historic extent of the cemetery is not known, and the maps in Chapter 2 show its general location rather than its precise boundaries. Broadway (a road leading northward from town that would be called Great George Street in the early 18th century) may have formed the western edge of the cemetery. When houses were built along the east side of that thoroughfare (in place by the 1760s), the west side of the cemetery would have been truncated. To the north, the boundary between the Van Borsum patent and the Damen patent/Calk Hook Farm may have been maintained, with burials limited to the south side of the line throughout much of the cemetery's life – this will be discussed further in Chapter 4. Eastern and southern limits are more problematic. The pottery manufactories would have hemmed in the burial ground on the east starting in the second quarter of the 18th century, but earlier than that interments may have extended along the south side of the pond. Municipal use of the northern part of the town common, now City Hall Park, would have "pushed" the cemetery northward in the same period, with the palisade constructed in 1745 forming an effective southern boundary, at least while it was in place (until approximately 1760).[3]

It is possible the cemetery grew in area during its early period (whether in the 17th or early 18th century), and then constricted during the second half of the 18th century as various kinds of development encroached. With this constriction, the density of interments and the superimposition of graves within the remaining ground would have increased.

The excavated site was located in the north part of the cemetery along the Van Borsum patent/Calk Hook Farm boundary. In Figures 3.5 through 3.7, the outline of the African Burial Ground archaeological excavation is superimposed on 18th century maps which we

[2] The Collect was fed by deep springs. In the early-to-mid-18th century it teemed with fish and its water supplied households as well as industrial yards. The pond was surveyed in 1801, two years before it began to be drained (see Stokes 1915-28(1):Plate 58A), but the contours of the adjoining meadowlands and swamps had shifted by then. Rutgers started draining the swamp in 1733-34, to the consternation of nearby tanners who complained that the lowering of the pond's water level had compromised the water supply in their manufacturing yards.

[3]The boundary given for the National Historic Landmark was partly based on historic documentation, but was partly drawn with reference to the likelihood of preservation in the blocks surrounding the archaeological site. The southern extent of the cemetery was never clearly established for the NHL, and later excavations at the north end of City Hall Park and on Chambers Street revealed the presence of graves near the north foundation of the Tweed Courthouse and at the perimeter of the northern part of City Hall Park. The cemetery probably extended further south than the NHL boundary.

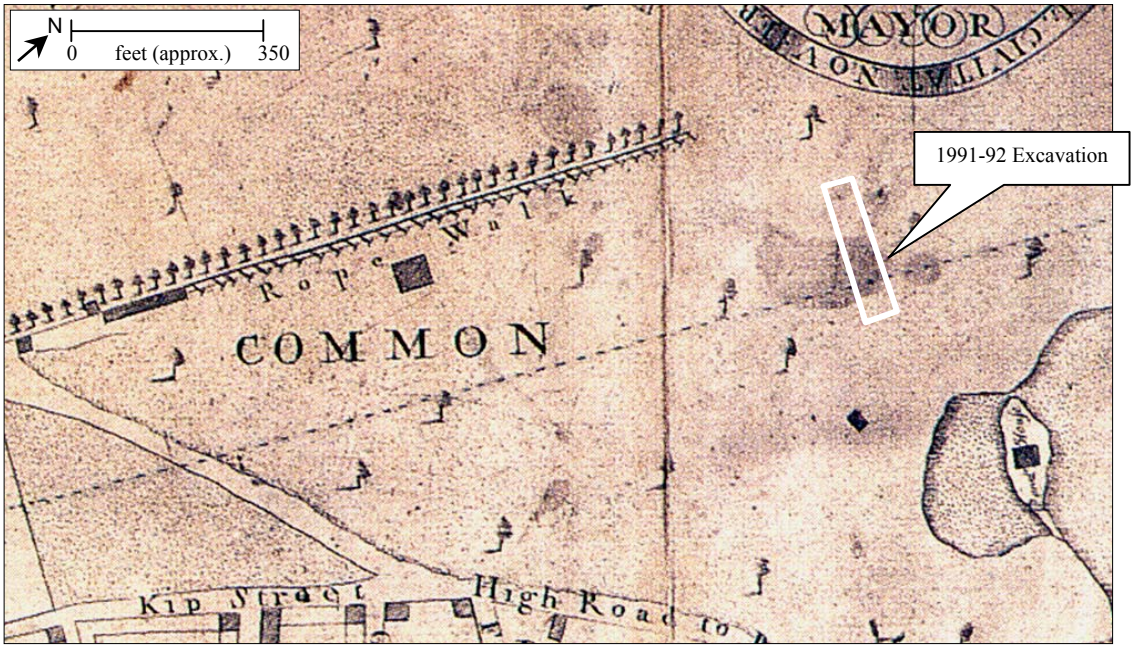

Figure 3.5.
Site location overlaid on Lyne-Bradford Plan (1730). (Scale: 1 inch = approx. 350 feet.) The ropewalk (shown lined with trees) is the alignment of present-day Broadway. The dashed north-south line that runs through the excavation site represents the boundary between the North and West Wards of the city.

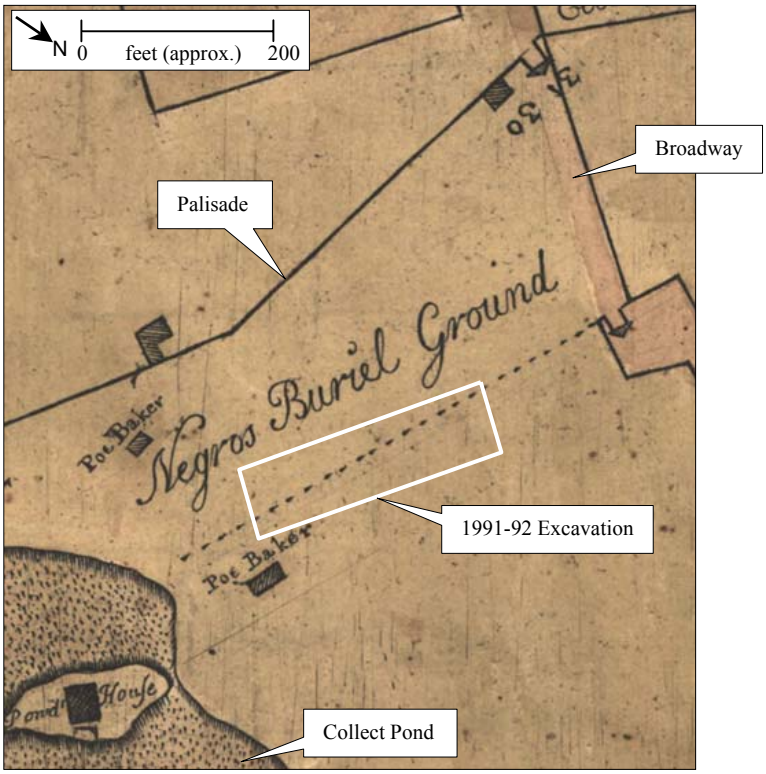

Figure 3.6.
Site location overlaid on the Maerschalk Plan (1754). The dashed line crossing the excavation site may represent the boundary between the burial ground and the Rutgers Calk Hook Farm at the time the map was made. The area containing excavated graves spanned this line. (Scale: 1 inch = approx. 200 feet.)

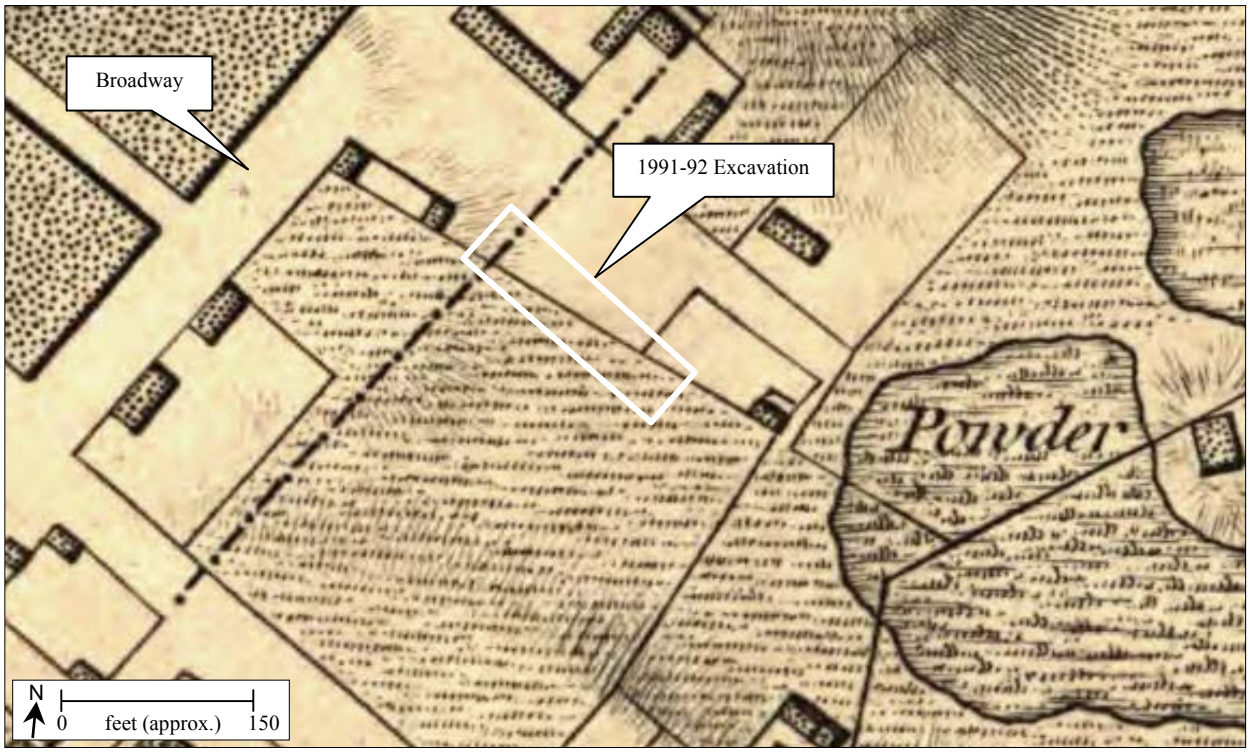

Figure 3.7.
Site location overlaid on the Ratzer Map (1767). The solid line crossing the excavation site may represent the boundary between the cemetery/Van Borsum patent and the Calk Hook Farm at the time the map was made. The area containing excavated graves spanned this line. The dashed-dotted line parallel to Broadway is the ward boundary.

have already seen in Chapter 2. As can be seen from these figures, the excavation site was in a portion of the cemetery that remained "available" for interments throughout the 18th century – that is, it did not see construction of private houses and industries, military structures, or public buildings, as did the perimeter area. The only known structure within the excavation site that dates to the life of the cemetery (other than the graves themselves) was the fence that apparently ran along the boundary between the Van Borsum patent and the Calk Hook Farm.

The archaeological site thus sampled a part of the historic African Burial Ground where interments continued to take place until the subdivision and development of the property by the Barclay and Kip families (1787 and 1795 respectively) and the final closing of the cemetery. And, because the overall area that could be used for interments was constricting due to surrounding development (the potteries, the palisade, the barracks, public buildings, and houses) we believe that the archaeological site included a part of the cemetery that would have been intensively used during the second and third quarters of the century. We also posit, however, that it included a part of the cemetery (to the north of the Van Borsum patent/Calk Hook Farm boundary) that was only used during the final quarter of the century, and thus is less densely packed with graves. This argument is taken up in Chapters 4 and 9.

The total area designated a National Historic Landmark is approximately seven acres, and the Van Borsum Patent comprised approximately 6.6 acres. The area investigated archaeologically covered 27,000 square feet of Block 154, and the portion where burials were excavated comprised about 9,500 square feet. Using 6 acres as a low-end estimate of the historic expanse of the African Burial Ground, the excavated area containing burials may represent just 3.6 percent of the original cemetery. The number of graves excavated within the archaeological site was 424. If we were to assume that the density of burials was similar over the whole of the African Burial Ground, six acres could have accommodated over 11,600 burials. Based on the density encountered within the excavated portion, it is estimated that an additional two- to three hundred graves were left unexcavated on Block 154, within the "Pavilion" site (now the reinterment and memorial site) alone. As noted, the excavated site has both a portion of the cemetery that was very densely used and a portion that was relatively thinly used, so there is room for error in either direction.

Another way to estimate the total number of people buried in the African Burial Ground is to attempt to project the total number of Africans who might have died in the city during the years of the cemetery's use. This is problematic since while we do have census data for blacks for some years, we do not have any data on death rates. Bills of mortality available for Philadelphia in the period 1767-1775 indicate an average of 75 burials of Africans per year; this represented about 7 burials for every 100 blacks per year, a rate about 50% higher than among whites (Nash 1988:34). If a similar death rate applied to New York, about 219 blacks would have been buried in 1771 based on that year's census count of 3,137. If we use this same death rate for each census year, and smooth the rate of population growth (or decrease) between the census years, the numbers of deaths of Africans in New York would be calculated at 14,010 for the period 1698 to 1795.[4] This number is close enough to the estimate of 11,600 based on area to allow for a general estimate of 10,000 to 15,000 for the cemetery as a whole. Using the estimates based on area, the 419 individuals that are represented by skeletal remains would be a 3.61 percent sample of a mortuary population spanning a 100 to 150-year period. Using estimates based on projecting numbers of deaths from population statistics, the 419 individuals would be a 2.97 percent sample.

Impacts to graves during the cemetery's use

It is impossible to know for certain all of the times and places graves would have been disturbed over the life of the burial ground, especially since the date of its inception and its full geographical extent (particularly on the south and east sides) are not known. Known and likely impacts are summarized here.

[4] Neither a constant death rate nor a smooth population trend is historically likely, of course. Disease may have created spikes in the death rate, and importations would have caused fluctuations in the rate of population growth. The period of the British occupation during the war saw both a swollen black population and increased deaths. It is also very likely that infants and especially newborns were consistently under-counted in the census (as well as in the mortality bills). Infants also may be under-represented in the burial ground due to poor preservation. If the total number of blacks who died in New York is estimated at 30 percent higher in order to include "missing" infants, then the total population of the African Burial Ground may have been well over 15,000.

- The development of the pottery industries would have been the first major impact. It is not known whether the stoneware potteries located east of the excavated site stood within the original burial ground. If so, their construction surely would have destroyed existing graves. We do know for certain that pottery waste was dumped on the cemetery, because such a dump was encountered in the eastern part of the site.
- The construction of dwellings (with associated gardens, fences, and outbuildings) is likely to have disturbed graves. The locations of 18th-century dwellings – on Broadway and possibly on the east side of the cemetery at the stoneware potteries – were outside the area excavated archaeologically.
- The construction of municipal and military facilities in what is now City Hall Park during the 18th century may have impacted the southernmost graves. This area is south of the excavated site.
- The construction and maintenance of the town palisade probably disturbed graves along its alignment. The palisade was located to the south of the excavated site.
- The interments of prisoners in the southern part of the ground by the British army during the occupation may have disturbed or destroyed existing African burials. Again, this impact was probably to the south of the excavated site.
- The archaeological excavation revealed that tannery waste (i.e., cattle bone, hoof, and horn) was dumped in the northern part of the cemetery while it was active.
- Graves were robbed for cadavers in the 1780s.

It was not unusual in the 18th century for cemeteries to be encroached upon by construction and intrusions by animals. The African community may have suffered these depredations largely in silence, though protests may have gone unrecorded. Efforts to protect the burial ground from depredations were not documented until the most egregious of the encroachments – the exhumation of newly interred bodies for dissection – caused a public outcry (see Chapters 2 and 9). In the case of intact coffins that proved empty, body snatching by medical students may be an explanation, and two individuals, in Burials 323 and 364, were probably reburied after dissection (see descriptions in Volume 3 and discussion in Chapter 9 below). By and large, however, within the small portion of the cemetery that was excavated archaeologically, severe disturbances to burials appeared to date to later periods, after the cemetery ceased to be used for interments.

Post-cemetery development

The earliest street and lot development and the fill

The African Burial Ground was subject to 200 years of building construction and demolition, street maintenance, and utility installation once interments ceased. The portion of the cemetery that was excavated survived not only the early development of

urban residential lots, but also much more massive later construction phases, due to three factors: 1) an alley was laid out in the 1790s through the middle of the block, and portions of this alley were relatively undisturbed subsequently; 2) some of the structures built on the lots had relatively shallow basements; and 3) most importantly, in the final years of the 18th century and the early years of the 19th century, the low-lying terrain of the African Burial Ground was covered with landfill to bring the area up to a level grade, thus protecting graves from later construction damage.

After the streets crossing the cemetery were mapped out (Table 3.1), and the Barclay land (part of the old Calk Hook Farm) and the Kip land (the old Van Borsum patent) were surveyed and subdivided into lots (see Chapter 2.C and Figures 2.13 and 2.15), the way was open for intensive residential and commercial development of the African Burial Ground. At this time, as we have seen in Chapter 2, African community leaders petitioned for and received a subsidy to purchase land and establish a new cemetery elsewhere.

Table 3.1.
Streets laid out through African Burial Ground

Street	History
Duane Street	The segment of this street to the east of Broadway was called Anthony Street when it was mapped at the time of the Calk Hook Farm subdivision in 1787 (Figure 2.13). It was known as Barley Street at the turn of the century, and renamed Duane Street in 1809. Proprietors of abutting lots were ordered to "dig out and fill in" the street in 1795. Note: this street should not be confused with the later Anthony Street two blocks to the north.
Elk Street	Called Ann Street when mapped at the time of the Van Borsum patent subdivision in 1795 (Figure 2.15). Regulated in 1803, at which time it was called Elm Street.
Reade Street	Laid out in 1795 at the time of the Van Borsum patent subdivision (Figure 2. 15). Formerly Reed Street.
Republican Alley	The alley was called Manhattan Place or Alley in the 19th century. Laid out in 1795 at the time of the Van Borsum patent subdivision (Figure 2.15), though its position shifted south and west compared to the alley shown on the map. The proprietors of abutting lots were ordered to "fill up" the alley in 1803.
Chambers Street	In 1796 a triangular wedge out of the "Negros Burial Ground" (i.e. the southern edge of the Van Borsum Patent -- see Figure 2.15) was acquired by the city from the patent heirs for laying out this street to the east of Broadway (MCC 1784-1831(2):250).
See Hunter Research (1994) for details and sources for each street within New York's African Burial Ground and the Commons Historic District.	

During the period of its confiscation by the purchasers and developers of individual lots—a process that probably took a decade or more (at least from the 1787 survey of the Calk Hook until the 1795 survey of the Kip property)—the African Burial Ground may have witnessed an almost daily struggle on the part of the relatives and descendants of those buried there to maintain their ties to the place and the dignity of grave sites. There were doubtless many visible, marked graves at the time of initial development of some of the lots—evidence from the archaeological excavation indicates that markers such as

headstones or cobble outlines were used (see section 3.C). These would have been covered over, if not destroyed, in the first phase of lot development.

Reade and Anthony/Barley/Duane Streets were laid out perpendicular to Broadway, but since the property line between Barclay and Kip lands was not, an "extra" triangular piece of property remained through the middle of the block when the rectangular Reade Street lots were first laid out. An alley, later to be called Republican or Manhattan Alley, was laid out running north from Reade Street and turning at a right angle to run east-to-west behind the Reade Street lots, taking up a portion of the "extra" triangle and providing additional frontage to maximize the potential for building houses. But this still left a small "gore" of land on the north side of the alley, abutting the rear yards of the Duane Street lots. The pieces of the gore were all eventually purchased and consolidated with the Duane Street lots, but the alley remained in place through the 20th century. Burials survived beneath a portion of this alley.

What about the new building lots? The history of property transactions from 1787 on within Block 154 has received detailed scrutiny, though properties on blocks surrounding this one have not been researched in as much detail.[5] The important issues for understanding the final years of the excavated portion of the African Burial Ground are 1) the timing of initial building construction on the new city lots and 2) the possible construction of a new fence at the rear of some Duane Street building lots, along the old Calk Hook Farm – Van Borsum patent boundary.

The excavated portion of the cemetery spanned the line between lots laid out in 1787 (on the north) and those laid out in 1795 (on the south). Did burials continue on the lots until houses were actually built, and when was that? Or did burials continue only in the southern area in the years between 1787 and 1795? The Barclays began to sell and lease lots on Duane Street after 1787, but documentary evidence indicates that Lots 12 through 17 were all developed (built on) in the period 1794 to 1799, with the first house within the excavated portion of Block 154 going up in 1794 on Lot 12 (Cheek 2003:Chapter 4). Thus it is possible burials continued over the entire area up until 1794. However, if a new fence was built along a stretch of the diagonal boundary line in order to demarcate the rear of Duane Street lots, it is possible those lots were off-limits for interments even before construction of houses began.

Houses on Lots 12, 15, and 16 were built earliest (Cheek 2003:Chapter 4). Damage to graves was caused when various types of pit features were dug in the rear parts of these lots (Figures 3.8 and 3.9).

[5] Preliminary research was conducted for the Stage IA background study on the site (Ingle et al. 1989). Subsequently, more detailed research on post-cemetery ownership and occupation of lots that were excavated was conducted by both Historic Conservation and Interpretation (by Jean Howson, Richard L. Porter, and Stephen Barto) and later John Milner Associates (by Thelma Foote and Reginald Pitts). Research relevant to the time periods represented archaeologically is presented in the report on the non-burial component of the 290 Broadway site (Cheek 2003).

Figure 3.8. (left)
Burial 153. A privy shaft at the rear of Lot 15 truncated the entire eastern part of the grave (bottom of photograph). The disturbed parts of the skeleton had been tossed aside and were found on the opposite side of the privy in a pile. Ruler is in feet and north is to right. Photograph by Dennis Seckler.

Figure 3.9. (right)
Burial 297. A privy shaft at the rear of Lot 16 truncated the entire western part of the grave (top of photograph), leaving only the legs below the knees and the eastern portion of the coffin. Scale shown is in inches. North is to right. Photograph by Dennis Seckler.

The earliest houses were not destined to last long. Beginning in the 1790s and into the first decade of the 19th century, the city undertook the filling in of the marshy areas around the Collect Pond, then of the pond itself, along with the grading of the hills in the area and the leveling of streets. Property owners were obliged to fill their own lots, as well as "regulate" (build up or dig out) the streets on which they fronted. Filling of the low-lying properties and streets on the African Burial Ground commenced in the 1790s. Duane Street property owners were required to build up the street in 1795, and Republican Alley was ordered to be filled up in 1803 (Hunter Research 1994:29-31, 55-56, 59-61). Once streets were leveled, the Common Council ordered "sunken" (low-lying) lots along them to be filled in (MCC 1784-1831(2):327-328). The pit and shaft features in the rear yards of Duane Street lots that had been built on before the filling were covered over and buried, just as were the graves of the African Burial Ground. Houses had to either be raised to the new street level or torn down and replaced. Once a lot was filled, building construction would begin at the new surface, and new building foundations and basements often extended only into the fill, not into the graves.

Fill encountered at the African Burial Ground archaeological site was approximately 13 feet deep on the west (behind Lot 12), and approximately 24 feet deep on the east near Elk Street, reflecting the original lay of the land. Some of this fill was from the time of initial leveling of the area (notably behind Lot 12, where it was sampled and could be dated on the basis of artifacts it contained), but much of the site also contained heavy

demolition fill from various demolition and rebuilding episodes over the course of the 19th and 20th centuries. Even these episodes failed to destroy hundreds of underlying graves, however, because they were so deeply buried.

Building construction in the 19th and 20th centuries

Maps from the 19th and 20th centuries depict the density of development on Block 154 (Figures 3.10-3.12). Every one of the lots that the Kip and Barclay families sold had structures on them before the middle of the 19th century – many had houses at the street front and at the back, along the alley.

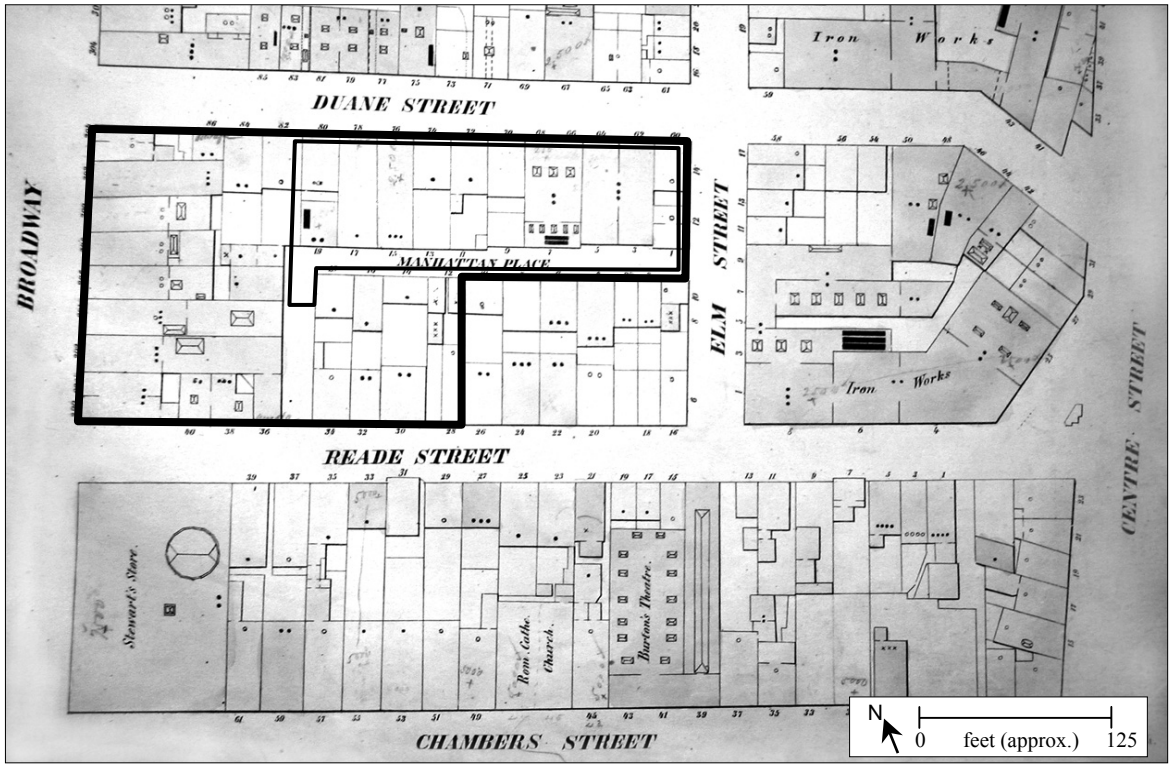

Figure 3.10.
Detail from Perris Map of 1853. By the mid-19th century, every property that had been laid out in the 1780s and 90s had been developed, some having already seen successive building phases. Republican Alley was known as Manhattan Place at this time, and most of the lots that backed onto it had buildings at both front and rear. Elm (now Elk) Street had not been laid through to Chambers Street yet. The footprint of the Federal building at 290 Broadway (as originally proposed) is indicated with a heavy black outline. The outline of the archaeological site is indicated with a thin black line within this footprint. Source: New York Public Library.

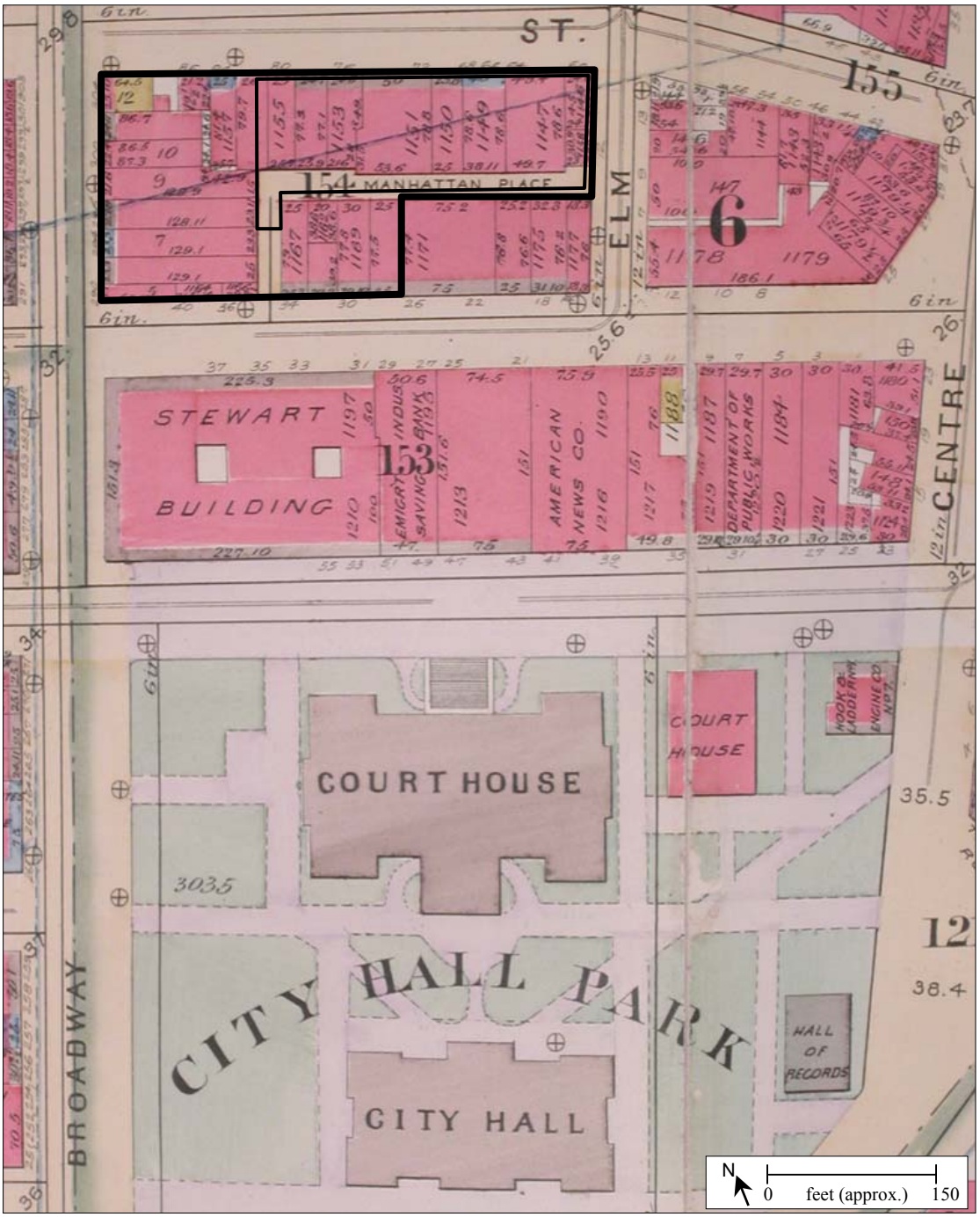

Figure 3.11.
Detail from Robinson and Pidgeon Atlas (1893) showing late 19th-century development in the area of the African Burial Ground. The former boundary between the Van Borsum Patent and the Calk Hook Farm was shown running diagonally across Block 154. Brick structures that covered entire lots now characterized the blocks in the area, and the "Tweed" Court House, facing north onto Chamber Street, had been built in City Hall Park. The footprint of the Federal building at 290 Broadway (as originally proposed) is indicated with a heavy black outline. The outline of the archaeological site is indicated with a thin black line within this footprint. Source: New York Public Library.

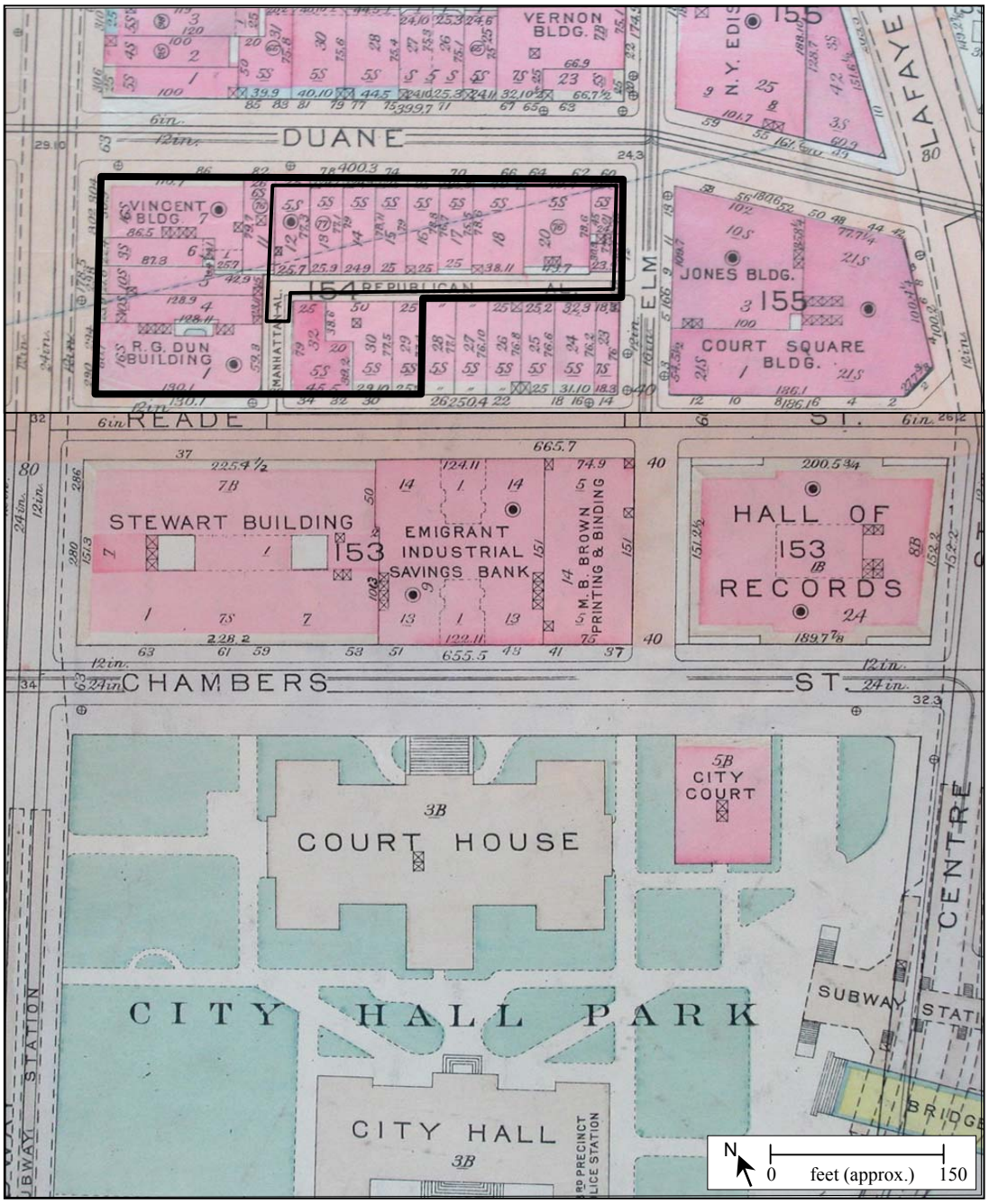

Figure 3.12.
Detail from the Bromley Map (1934) showing development in the area of the African Burial Ground. The former boundary between the Van Borsum Patent and the Calk Hook Farm was shown running diagonally across Block 154. The 8-story Hall of Records, on block 153 on the east side of Elm (Elk) Street, was built on the leveled 18th century "Pot Baker's Hill." Because of the previous leveling, and the deep sub-basement of this building, it is unlikely any burials survive on the block. Burials may be extant beneath the "Jones" and "Court Square" buildings on Block 155 just across Reade Street, however, since this would have been a lower-lying area and the basements are not as deep. Buildings are discussed in the National Historic Landmark nomination (Appendix A.2 of this report), and in the designation report for New York's African Burial Ground and the Commons Historic District. The footprint of the Federal building at 290 Broadway (as originally proposed) is indicated with a heavy black outline. The outline of the archaeological site is indicated with a thin black line within this footprint. Source: New York Public Library.

On some lots, successive buildings eventually obliterated all physical traces of the cemetery. This was true for all of the lots along Broadway, where the graves were not protected by deep fill and where large commercial structures had deep basements. We know from a newspaper reference that bones were removed during the 1845-46 construction of the A.T. Stewart Store on Broadway between Chambers and Reade Streets (New York Times, November 14, 1878). Lot 12 was in a part of the site where fill was relatively shallow, but it never had a building with a deep basement extending to the rear of the lot, so graves were intact in that area. The most recent structure on Lot 13 had a deep basement, and no graves were preserved within its footprint (Figure 1.7). Because of a combination of shallower basements and deeper fill to the east, buildings in Lots 14, 15, 16, 17, 18, 20 ½ and 21 did not destroy all of the graves (see Appendix A for schematic cross-sections through the blocks within the National Historic Landmark showing the projected level of graves in relation to building basements). Graves were preserved in place within the alignment of Republican Alley along a short stretch of the north-south leg and behind Lots 12 through 15, but to the east of this all graves that once lay beneath the alley had been disturbed by the excavation of the foundation for 22 Reade Street.

Even though hundreds of graves were preserved beneath the alley or the lot fill, considerable damage was caused by successive building episodes and related excavations. The site map (Figure 1.7) indicates areas where historic excavations for structures such as foundation walls, footings, drains, or elevator shafts clearly disturbed or destroyed graves. Known burials that were damaged prior to the archaeological investigation are listed in Table 3.2. For ease of reference the historic lot numbers are used, but it should be remembered that the lots post-date and have no relevance for the African Burial Ground itself. "Feature" numbers are arbitrary consecutive numbers given to pits, privies, drains, footings, etc. that were encountered during the archaeological excavations. These are described in full in the report of the 290 Broadway non-burial component (Cheek 2003). Examples of graves damaged in the second or third phases of development at the site are shown in Figures 3.13 and 3.14. Table 3.2 lists only those graves where historic impacts resulted in removal of skeletal remains; compression also caused damage.

Table 3.2.
Damage to known burials from historic development

Lot/Type of feature	Impact
Lot 12	
Cistern	Truncated Burials 58 and 63
Lot 13	
Concrete Foundation	Truncated Burials 10, 97, 102
Stone Foundation	Truncated Burials 25, 26, 32, 52; damaged Burials 83 and 84
Lot 14	
Foundation	Truncated Burials 162, 188, 125, 287, 277, 275, 228.
Basement at front of lot	Disturbed Burials 152 and 178
Shallow pit (Feature 106)	Possibly damaged Burial 125

Table 3.2. (continued) Damage to known burials from historic development	
Lot/Type of feature	**Impact**
Lot 15	
Privy (Feature 56)	Truncated Burial 153; damaged Burial 203
Privy (Feature 77)	Damaged Burials 192, 193, 252, and possibly Burial 225
Pit (Feature 91)	Slightly damaged Burial 158
Brick drain (Feature 100)	Damaged Burial 213
Lot 16	
Privy (Feature 58)	Truncated Burial 297; damaged Burial 181
Lot 17	
Foundation	Damaged burials 351, 370, 428
Lot 18	
Foundation excavations	Damaged burials 410, 413, 420
Footing	Damaged burial 414
Elevator shaft	Damaged burials 417, 418, 423, 434
Broadway Lots	
Foundations	Damaged burials 15, 36, 41, 46, 54, 67, 81, 89, 93
Reade Street Lots	
Foundations, mid-block	Damaged burials 66, 70, 118, 168, 170, 189,
Foundation, 22 Reade St.	Damaged burials 308, 316

Figure 3.13.
Photograph of Burial 97. A concrete wall between Lots 12 and 13 obliterated the eastern half of the grave. The ruler is measured in feet and north is to the right. Photograph by Dennis Seckler.

Figure 3.14.
Photograph of Burial 213. A brick drain constructed some time in the 19th century extended down through the grave, removing a portion of the coffin and skeletal remains but leaving the rest of the burial remarkably intact. The ruler alongside the grave is measured in feet. North is to the right.
Photograph by Dennis Seckler.

3.B. Damage sustained during the project

Burial 1, the first grave discovered at the African Burial Ground, was uncovered during backhoe excavation of a test trench and was truncated by the machine. Subsequently, excavation proceeded so as to delineate burials, by identifying the outline of the grave shafts, prior to beginning their meticulous hand excavation. Nevertheless, numerous graves were partially disturbed during backhoe clearing of demolition fill over large areas. Such damage is noted in the burial descriptions contained in Volumes 2 and 3 of this report. It is worth noting that 30 of the 31 skulls that were considered to be "intact" for purposes of skeletal analysis were recovered among the first 100 burials excavated, which suggests that the quality of excavation suffered as pressure to speed the work increased.

Construction of 290 Broadway proceeded throughout the archaeological field project, and damage to the burials continued to be sustained despite the presence of the archaeological team. Excavations for massive footings in the eastern part of the site were responsible for the destruction of many graves. Four openings for these 10' x 10' footings were excavated along a north-south alignment, each disturbing a 15' x 15' area (one is shown on the site plan, Figure 1.7). Based on the density of burials in the southeast part of the site (an area that was not even fully exposed), it is likely that dozens of graves were destroyed by each of the footings. Construction in 1991 of a perimeter wall for 290 Broadway also destroyed or damaged an unknown number of graves along Elk Street and possibly also along Duane Street. Another large area was disturbed during construction activity in the rear part of Lot 16. The use of heavy machinery on the site caused damage to additional graves, though this is more difficult to assess.

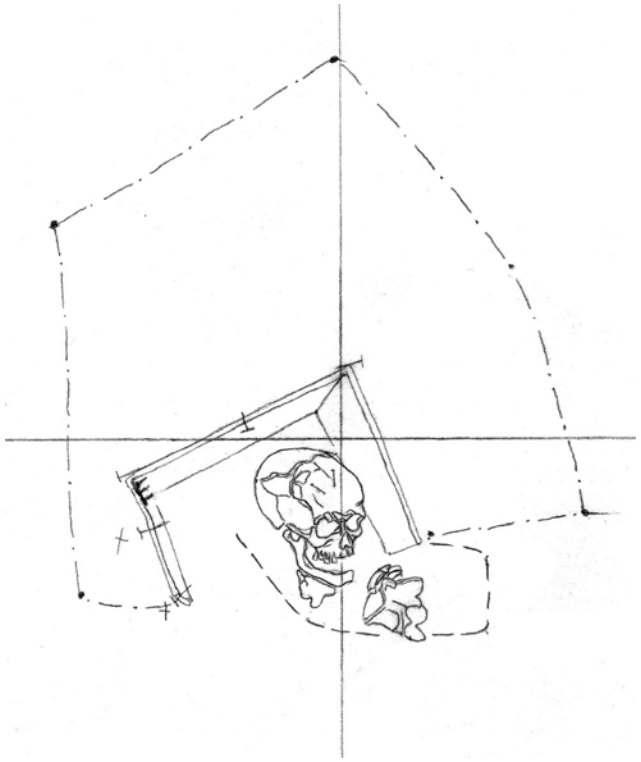

Figure 3.15.
In situ drawing of Burial 362, which was nearly destroyed by the installation of a massive concrete footing for the 290 Broadway building in February of 1992. The grave held a man of undetermined age. His cranium and a portion of the coffin were left relatively undisturbed. Numerous other burials were also damaged or destroyed by this footing and three others in the eastern part of the site. The scale is 1 inch = 1 foot. North is to the right. Drawing by M. Schur.

3.C. Overall Site Stratigraphy

As noted, clearing in most areas was done mechanically down to a level where graves were clearly visible, and sometimes to the very tops of coffins. It appears that pressure to speed the excavation often led to the disregard of deposits above this level. It is possible that historic-period development had already destroyed the earlier ground surfaces. But any historic surfaces that *may* have been extant beneath the fill may have been stripped in the interest of reaching the burials quickly. In some areas, stripping proceeded until the tops of coffins (readily recognizable from wood staining and *in situ* nails) were observed. This destroyed the opportunity for the archaeologists to examine most of the site for evidence of grave markers and items that had been deliberately placed on the tops of graves. The exception was the north-south leg of Republican Alley, where the surface of

some graves was present (Figure 3.16). This was the first site area excavated archaeologically, and was also the shallowest, requiring hand-excavation of upper layers; it is possible the excavators had the luxury of time to carefully look for old surfaces.

Figure 3.16.
Photograph of former Republican Alley during excavation, as the surface of graves was revealed. View is toward the south. Photograph by Dennis Seckler.

Despite not having the original or 18th-century ground surface over the majority of the archaeological site, it is possible to get a sense of the lay of the land by looking at the recorded elevations of burials. The micro-topography of the portion of the cemetery that was studied archaeologically appears to have included a general northeast-tending slope, and possibly also "terrace" areas where the ground was flatter, and where burials were concentrated. Figure 3.17 is a schematic profile of the excavated graves from west (closest to Broadway) to east (at Elk Street). Concentrations of burials are seen at 50E to 100E, and at 110E to 145E. The apparent precipitate drop-off at 100E is the effect of the construction disturbance at the rear of Lot 16.

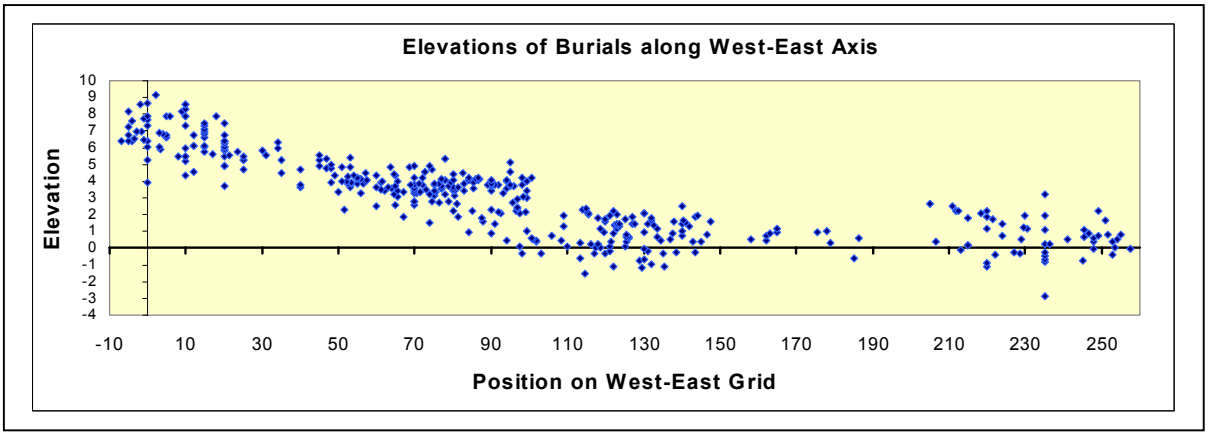

Figure 3.17.
Schematic diagram of elevations of burials (shown as diamonds) from east to west. Elevations are in feet above/below current sea level (measured at the highest point of the *in situ* skeletal remains). West is to the left. Grid line "0" on the West-East site grid is 280 feet east of Broadway. Differing scales along the X and Y axes exaggerate the variation in elevations.

When each African Burial Ground interment originally took place, the soil from the surface of the ground and from the grave shaft was removed and then re-deposited in the shaft. Thus material from the surface at the time of burial ended up mixed in with the fill in the grave shaft. In many cases, non-burial deposits surrounding or overlying the burials, but contemporary with the cemetery, are reflected in the contents of the shafts. For instance, some burials found in the area where the stoneware potteries were dumping kiln waste had large amounts of that waste in the grave shafts. In other cases, the grave shaft contents reflected the presence of a sparse sheet scatter of domestic debris (bits of glass, brick, smoking pipe, or ceramic), or of a fairly heavy deposit of animal bone and horn (probably waste material from a tannery). Materials present in the grave shafts can be used to reconstruct the 18th century ground surface deposits over the site area. For our purposes, this information is useful for dating graves, and for understanding the series of encroachments that affected the burial ground (see further discussion in Chapter 4).

Post-burial-ground features and deposits, which were located north of the cemetery or which overlay or cut into the cemetery deposits, were also excavated during the field project (Cheek 2003). Some of these represented distinct phases of use of Block 154. Cheek (2003) designated development Phases 1 through 6 for the site as a whole:

Phase 1 – through 1787 – African Burial Ground and contemporary uses including the potteries
Phase 2 – 1788 through 1803 – initial "urbanization"
Phase 3 – 1799 through 1807 – the raising of Anthony-Barley-Duane Street
Phase 4 – 1807 through 1890s – development
Phase 5 – 1900 through 1990 – development [also the razing of structures in the 1960s in advance of an aborted civic center development project]
Phase 6 – 1990 through 1992 – construction of 290 Broadway

The African Burial Ground cemetery was still in use during the first part of Cheek's "Phase 2," through 1795.

3.D. Condition of graves

Wet conditions at the African Burial Ground site were not a surprise, given the proximity of the Collect Pond and surrounding wetlands (the latter possibly at one time extending into the area of the cemetery). Moreover, many of the graves were themselves at or below modern sea level. During excavations, the water table often was high enough to flood burials, and it is assumed that fluctuating moisture levels affected them throughout the period of their interment, which in most cases would have been more than 200 years.

Preservation of both skeletal remains and artifacts was dependent on soil conditions. Project conservator Cheryl J. LaRoche described these as follows:[6]

[6] The African Burial Ground project conservators were Gary McGowan and Cheryl J. LaRoche. This text is from an unedited draft report of conservation activities prepared by LaRoche.

> The presence of naturally occurring alluvial clays with lenses of Cretaceous sands…contributed to the variety of environmental conditions… Many of the natural catalysts of artifact and skeletal deterioration were in these soils. Sand allowed water seepage, while the alluvial clay acted as a hydrophilic substrate, binding fee water to the adjacent artifacts and skeletal materials. The wet, gelatinous consistency of [some of] the skeletal remains upon excavation was indicative of waterlogged conditions. The abundance of oxygen, inherent in alluvial clays, increased acidity (lowered pH), which broke down organic resins. Furthermore, this oxygenated environment encouraged the deterioration of ferric alloys through oxidation as the free oxygen was tied to the groundwater. Thus, iron preservation at the 290 Broadway Block was poor due, in part, to oxygenated conditions and electrochemical activity.
>
> When a catalyst, such as oxygen, is depleted, the soil becomes anoxic, and agents of deterioration that are dependent on an oxygenated environment rapidly decline while there is a corresponding increase in anaerobic activity. This anoxic environment harbored anaerobic bacteria, which accelerated the rate of degradation of organic materials. Several artifacts exhibited blackened surfaces, evidence of metal sulfides produced by sulfate-reducing bacteria associated with anaerobic conditions. The microenvironment produced by the permeable sand lenses fostered its own unique degradation pattern. While these more permeable loci are less biologically reactive, they can be more chemically reactive. As one agent of deterioration diminished, another flourished [LaRoche 2002:17].

In addition, the chemical environment caused by decomposition of the human remains in each grave would have affected the preservation of items such as cloth or artifacts.

Soil chemistry was not tested during excavations of the graves or subsequently in the laboratory. Differential preservation conditions generally cannot be determined from burial to burial (unless obvious factors such as excessive moisture are mentioned in the notes), and this has implications for studying the distribution of burial artifacts. In other words, the presence or absence of burial items cannot be checked against preservation conditions. For graves where no artifactual material was recovered, the possibility of total decomposition should be considered. For example, pins were often noted in the field but not recoverable, and it is possible some were so decomposed that they were not distinguishable to the naked eye in the field. Similarly, recovered pewter and bone button fragments were very poorly preserved and it is not inconceivable that such items were no simply longer extant in some burials. Where field notes indicate that the preservation was poor, determinations as to the absence of burial artifacts (or skeletal elements, for that matter) should be qualified.

Post-interment animal activity (worm action and small mammal burrows) was noted in numerous graves. Changes in drainage caused by filling and construction over the centuries would have created fluctuations in moisture conditions, and such fluctuations themselves are very damaging. Pollutants from 19th and 20th-century use of the property that seeped through the soils may have altered the preservation environment of graves. Finally, the exposure of skeletal remains through excavation presented an immediate

danger of deterioration. Most importantly, if the bones were soft from moisture, drying would cause them to become friable.[7] Field protocols for ensuring maximum stabilization of remains and artifacts are noted in Chapter 1.

All recorded observations of the in-field condition of individual graves are noted in the burial descriptions in Volumes 2 and 3 of this report.[8] The condition of artifacts and products of decomposition noted during laboratory processing are discussed in the appropriate artifact chapters (Chapters 11 through 14).

3.E. Preservation assessment

Field records were reviewed for information pertinent to the likely presence or absence of artifacts in graves based on preservation factors, including damage sustained to burials, degree of disarticulation and disturbance, and whether excavation was complete. This is crucial to the analysis of artifact frequency distributions, which should only include burials for which the preservation of items was at least possible. A simple logic was applied, taking into account the fact that in an intact grave, artifacts might survive even where bone does not (recall the number of coffins, especially very small ones, with no extant human remains). Burials were assigned yes or no values depending on whether artifacts could be expected. For a small number of burials we also needed to take into account which part of a burial had survived. Pins were most frequently found on the cranium, so burials with missing crania but good preservation otherwise were noted. The "preservation" field in the burial data table contains a value for each burial as follows:

"y" = Overall preservation of grave is such that artifacts might be expected to have survived. Skeletal elements from the upper half of the body and/or the coffin outline with nails were found *in situ*.

"n" = Heavily disturbed or redeposited remains; or the upper body was missing due to truncation by later feature and no artifacts were found with lower body.

"y (no cranium)" = Otherwise intact grave where just the cranium had been truncated (cranial pins would be missing, but survival of other artifacts may be expected).

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[7] Conservation measures, such as consolidation of friable material with PVA (polyvinyl acetate), were sometimes taken in the field. Trained conservation staff was not always on hand during the fieldwork, however. The professional conservators subsequently indicated that the overuse of PVA sometimes caused soil to bind to bones and artifacts.

[8] Field recording was highly variable. In general, recordation of the condition of the skeleton, element by element, was much better than that of the overall grave (notes on the observed condition of *in situ* skeletal elements were recorded on forms by the excavation staff of the Metropolitan Forensic Anthropology Team and are retained in the project archive). For some burials, detailed notes were taken on the soil, moisture conditions, consistency and surface condition of the bone, wood, and artifacts, and damage from exposure. For others, little or no information on these factors was recorded.

"y (cranium only)" = Only the cranium was still in its apparent original burial location (pins may be expected, though other artifacts would be missing, since they rarely occur on the cranium).

"n (empty coffin)" = Human remains (and possibly artifacts) appear to have been removed from otherwise intact coffin. These are rare cases where it is believed decay cannot account for the lack of skeletal remains.

"n (not excavated)" = Artifacts were not found, but the burial was not fully excavated at the time the field project was halted, so their presence cannot be ruled out.

This artifact preservation assessment does *not* correspond to the cranial and post-cranial preservation value assigned to the skeletal remains for each burial (see Skeletal Biology Report, Appendix C, Blakey and Rankin-Hill 2004), which serve a different purpose. While some of the factors affecting bony preservation also apply to artifacts, others do not. For example, even where the preservation of skeletal remains was minimal, such as for many of the infants, coffins were clearly defined and preservation of any other artifacts that had been placed with the deceased might be expected. It is worth noting that in several cases of extremely disturbed remains, copper staining from pins or tiny pin fragments were nonetheless noted with the bone.

Discussions of artifact frequencies in subsequent chapters will indicate the total numbers of burials considered, based on the preservation assessments or other relevant criteria.

3.G. Graves remaining in place at the site

The field excavation was halted by the General Services Administration at the end of July 1992. Graves for which excavation was already underway at the time the excavation was halted were filled with vermiculite and soil was placed over them. Some of these were subsequently removed in October of 1992; others were left in place. At that time, only some areas had been fully excavated (i.e., all burials removed).[9] The site plan (Figure 1.7) indicates the boundary line between the area that had been fully excavated and that which had not. It should be noted that between grid lines 110 East and 150 East, excavated burials seem to be equally dense on either side of this line. The excavation team, however, clearly indicated that the area eastward of the line had not been fully excavated, and that therefore additional burials might be present.[10]

Based on the distribution of burials in areas that were fully excavated, it is likely burials are present throughout most of the northern portions of former Lots 17, 18, 19, 20 ½, and

[9] The field excavations were stopped *only* after all burials had been excavated within the entire footprint of the 290 Broadway 34-story tower. The redesign of the building thus only had to address the relatively minor "Pavilion" section.

[10] The draft site plan was prepared by field personnel Brian Ludwig and Margo Schur under the direction of Field Director Michael Parrington. This plan was used to plot foundations, non-burial features, limits of excavation, site disturbances, and the site grid on Figure 1.7.

21 (one *possible* grave outline was noted in the northeastern part of the site prior to halting the excavation). This means that the current memorial site, in fact, contains an intact portion of the original cemetery, containing perhaps two to three hundred graves, beneath up to 25 feet of fill soil within the grass-covered enclosure.